Texas Commission on Environmental Quality
Total Maximum Daily Load Program

Improving Water Quality in the Houston Ship Channel

Fourteen TMDLs for Nickel

Water Quality in the Houston Ship Channel System

This Total Maximum Daily Load (TMDL) project for the Houston Ship Channel System addressed dissolved nickel concentrations in water. Concern about nickel arose during the late 1980s; this TMDL effort began shortly thereafter. Advances in the ability to accurately measure very low concentrations of metals and repeated sampling have revealed that nickel is much less of a problem than was initially indicated by the less accurate data of the 1980s. However, the TMDL project was continued in order to finally resolve the nickel concerns and to support other TMDL projects in the Houston Ship Channel System area.

The state of Texas requires the water quality in the 14 segments of the Houston Ship Channel to be suitable for contact recreation, noncontact recreation, high quality aquatic life, navigation, and industrial water supply; however, not all the segments are required to be suitable for all these uses.

Water quality in the channel has improved dramatically since the 1970s due largely to efforts of state agencies, local governments, and industries. Areas of the channel that were once devoid of aquatic life now support abundant communities and recreational fishing. Many of the human health and environmental risks once associated with the channel area have been reduced or eliminated. However, a number of limitations and impairments of water quality remain, due largely to the physical characteristics of the deep-draft navigation cha nnels and the heavily urban and industrial nature and history of the region.

Description of the Watershed

The Houston Ship Channel System is located in the San Jacinto River Basin. Its various branches originate in western and northern areas of the City of Houston, and at the Lake Houston Dam on the San Jacinto River.

The Houston Ship Channel System consists of 14 designated segments, which together comprise the "enclosed" portion of the Houston Ship Channel proper, with its major tributaries and side bays. The System excludes those portions of the Ship Channel located in Galveston Bay, seaward from Morgans Point. The

designated segments included in this definition of the Houston Ship Channel System are:

- San Jacinto River Tidal (1001)
- Houston Ship Channel/San Jacinto River Tidal (1005)
- Houston Ship Channel Tidal (1006)
- Houston Ship Channel/Buffalo Bayou Tidal (1007)
- Buffalo Bayou Tidal (1013)
- Buffalo Bayou Above Tidal (1014)
- Greens Bayou Above Tidal (1016)
- Whiteoak Bayou Above Tidal (1017)
- Tabbs Bay (2426)
- San Jacinto Bay (2427)
- Black Duck Bay (2428)
- Scott Bay (2429)
- Burnett Bay (2430)
- Barbours Cut (2436)

Commercial navigation primarily occurs in the segments and reaches southeast of the central business district of Houston, in an area that contains one of the highest densities of petrochemical facilities in the world and has long been one of the three or four busiest ports in the U.S.

The Houston Ship Channel System is tremendously important to the surrounding region. The commercial navigation provided by the channel initiated and supported the historic growth of the Houston area economy. The channel and the facilities along it are important elements in the economic health of the region, state, and nation. The channel's production of materials and inland location have been and will be important to the military security of the U.S. The headwater reaches, tributaries, and fringes of the System also provide recreational opportunities for residents.

Public Participation Process

Due to the lengthy and extremely technical nature of the sampling, analysis, and model development aspects of this TMDL, initial public participation was primarily by permitted dischargers that have contributed to data collection efforts and provided comments on laboratory results and model characteristics. In June 1999, approximately 40 people representing environmental groups, local governments, local industries, and consultants met with TCEQ staff to discuss the draft TMDL report. Participants recommended some revisions to make the report easier to understand and to more clearly describe the allocation. The draft report was revised and released for public comment. A public hearing was held in Houston in January 2000.

An implementation plan for the TMDLs was then developed. The TCEQ solicited public comment on the plan in writing and at a public meeting in May 2001.

For More Information

For information about the project, contact one of the following representatives, or visit our Web site at www.tnrcc.state.tx.us/water/quality/tmdl/.

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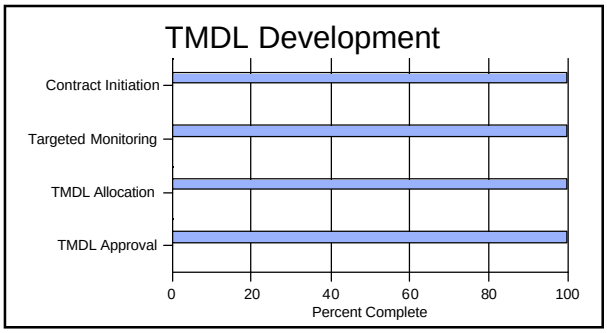
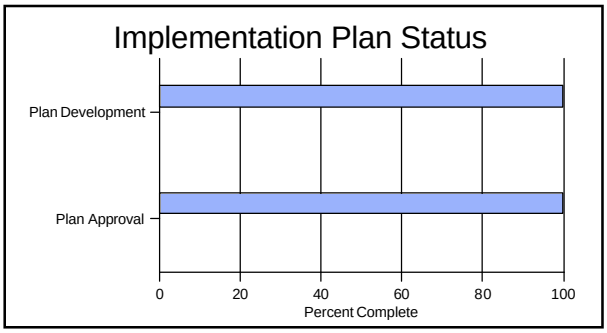
TMDL Development Status

Start: 1990
TCEQ Adoption: August 11, 2000
Submitted to EPA Region VI: August 17, 2000
EPA Region VI Approval: May 9, 2003



Implementation Plan Status

Start: November 2000
TCEQ Approval: July 13, 2001



Project Highlights

- EPA Region 6 stated that the draft TMDL was technically acceptable in a letter dated June 4, 1999.
- The final report, *Fourteen Total Maximum Daily Loads for Nickel in the Houston Ship Channel System*, was adopted by the Commission on August 11, 2000, and adopted as an update to the Texas Water Quality Management Plan.
- The TMDLs were submitted to EPA Region 6 for approval on August 17, 2000.
- The EPA appoved the 14 TMDLs on May 9, 2003.
- The *Implementation Plan for Dissolved Nickel in the Houston Ship Channel System* was approved by the Commission on July 13, 2001.